

WHAT IS CLAIMED IS:

1. A method of granting access to a bus to one of a plurality of requesting communication circuits that each submitted a bus control request during a request period of an arbitration period, the method comprising the steps of:
 - determining a first and a second stored identity associated with the arbitration period, the first stored identity identifying a first communication circuit, the second stored identity identifying a second communication circuit; and
 - determining whether any requesting communication circuit has an identity that matches the first or the second stored identity.
2. The method of claim 1 and further comprising the steps of:
 - identifying a matching communication circuit when a requesting communication circuit has an identity that matches the first or the second stored identity,
 - reading a stored priority associated with the matching communication circuit, the stored priority indicating a priority level of a data cell of the matching communication circuit; and
 - determining whether a priority of the matching communication circuit matches the stored priority.
3. The method of claim 2 and further comprising the step of when the priority of the matching communication circuit matches the stored priority, determining if the first and second stored identities both match the identity of the matching communication circuit.
4. The method of claim 3 wherein when the identity of the matching communication circuit matches only the first or the second

stored identity, outputting a grant to the matching communication circuit.

5. The method of claim 4
5 wherein the bus has a plurality of first control lines and a plurality of second control lines; and
further comprising the step of when the first stored identity and the second stored identity both match the identity of the matching communication circuit, determining whether a bus control request with
10 an identity that matched the first stored identity and a bus control request with an identity that matched the second stored identity came in on a same control line.

6. The method of claim 5 and further comprising the step of
15 when the bus control requests came in on the same line, outputting a grant to the requesting communication circuit that has a lowest stored identity.

7. The method of claim 5 and further comprising the step of
20 when the bus control requests did not come in on the same control line, outputting a grant to the requesting communication circuit that sent a request in on the first control lines.

8. The method of claim 2 and further comprising the step of
25 when a requesting communication circuit does not have an identity that matches the first or the second stored identity, determining a selected communication circuit from the plurality of requesting communication circuits.

9. The method of claim 8 wherein the selected communication circuit is determined with a round robin.

10. The method of claim 2 wherein the priority of the
5 requesting communication circuit is the priority of a data cell to be transmitted onto the bus by the requesting communication circuit.

11. A communications circuit comprising:
a transmit circuit that transmits information onto a cell bus;
10 a receive circuit that receives information from the cell bus;
a memory that stores grant information regarding a plurality of arbitration periods, the grant information for each arbitration period including a first stored identity that identifies a first communication circuit, and a second stored identity that identifies a second
15 communication circuit; and
a logic circuit connected to the transmit circuit, the receive circuit, and the memory that determines whether any communication circuits requested control of a bus during an arbitration period, the logic circuit determining a first and a second stored identity associated with the
20 arbitration period, and determining whether any requesting communication circuit has an identity that matches the first or the second stored identity.

12. The communications circuit of claim 11 wherein when a
25 requesting communication circuit has an identity that matches the first or the second stored identity, the logic circuit identifies the requesting communication circuit as a matching communication circuit, reads a stored priority associated with the matching communication circuit, and determines whether a priority of the matching communication circuit

matches the stored priority, the stored priority indicating a priority level of a data cell of the communication circuit.

13. The communications circuit of claim 12 wherein when the
5 priority of the matching communication circuit matches the stored priority, the logic circuit determines if the first and second stored identities both match the identity of the matching communication circuit.

14. The communications circuit of claim 13 wherein when the
10 identity of the matching communication circuit matches only the first or the second stored identity, the logic circuit outputs a grant to the matching communication circuit.

15. The communications circuit of claim 14
15 wherein the bus has a plurality of first control lines and a plurality of second control lines; and

further comprising the step of when the first stored identity and the second stored identity both match the identity of the matching communication circuit, the logic circuit determines whether a bus control
20 request with an identity that matched the first stored identity and a bus control request with an identity that matched the second stored identity came in on a same control line.

16. The communications circuit of claim 15 wherein when the
25 bus control requests came in on the same line, the logic circuit outputs a grant to the requesting communication circuit that has a lowest stored identity.

17. The communications circuit of claim 15 wherein when the
30 bus control requests did not come in on the same control line,

outputting a grant to the requesting communication circuit that sent a request in on the first control lines.

18. The communications circuit of claim 12 wherein when a
5 requesting communication circuit does not have an identity that matches the first or the second stored identity, the logic circuit determines a selected communication circuit from the plurality of requesting communication circuits.

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